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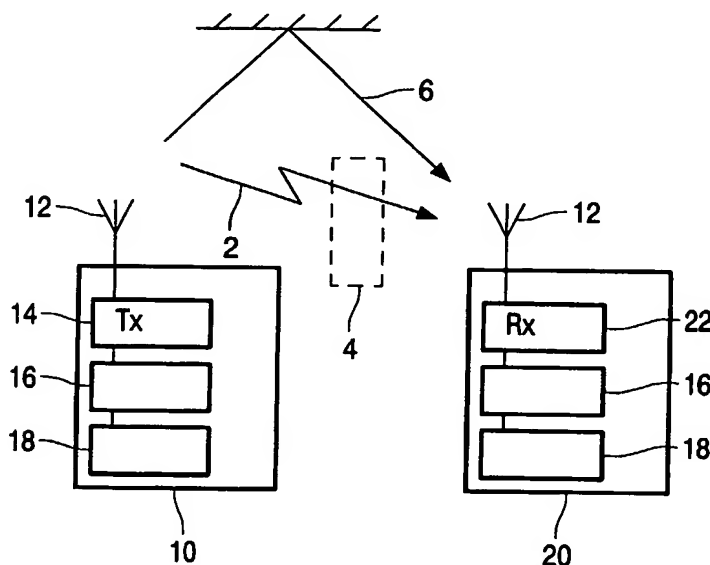
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ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ,
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[Continued on next page]

(54) Title: MULTIPATH MITIGATION



(57) Abstract: A signal is transmitted from
a transmitter (10) to a receiver (20) both
directly (2) and indirectly (6) giving rise to
multipath effects. A number of predetermined
correlation shapes and respective correction
shapes are provided, the correction shapes being
correlation shapes with the direct line-of-sight
component removed. The received signal
is fitted to the correlation shapes, optionally
scaling the correlation shapes, and then the
correction shape corresponding to the best
match correlation shape is subtracted from the
received signal to obtain a corrected correlation
shape.



EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 031 882 A (ENGE PER ET AL) 29 February 2000 (2000-02-29) column 1, line 14 - line 23 figure 2 figure 6 column 4, line 57 - line 63 column 6, line 54 - line 61 column 14, line 45 - line 53 ---	1-8
A	US 5 142 551 A (BORTH DAVID E ET AL) 25 August 1992 (1992-08-25) column 9, line 52 - column 10, line 48 figure 2 ---	1,2,4-6
A	US 5 347 536 A (MEEHAN THOMAS K) 13 September 1994 (1994-09-13) column 1, line 38 - column 3, line 17 figure 1 -----	1-8

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Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6031882	A	29-02-2000	US 5630208 A	13-05-1997
US 5142551	A	25-08-1992	AU 637545 B2	27-05-1993
			AU 1533792 A	06-10-1992
			BR 9204765 A	06-07-1993
			CA 2075051 A1	29-08-1992
			CN 1065765 A , B	28-10-1992
			DE 4290581 C2	05-05-1994
			DE 4290581 T0	18-02-1993
			FR 2673781 A1	11-09-1992
			GB 2262416 A , B	16-06-1993
			IT 1258357 B	26-02-1996
			JP 2998992 B2	17-01-2000
			JP 5506762 T	30-09-1993
			KR 9603835 B1	22-03-1996
			MX 9200866 A1	01-10-1992
			WO 9216054 A1	17-09-1992
US 5347536	A	13-09-1994	NONE	